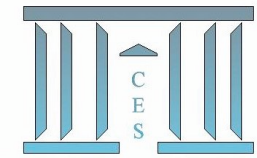
Conceptualizing the formation and role of expectations before 1950: George Katona's thought

Pierrick Dechaux

UNIVERSITÉ PARIS 1
PANTHÉON SORBONNE

Documents de Travail du
Centre d'Economie de la Sorbonne

CES Working Papers



Conceptualizing the formation and role of expectations before 1950: George Katona's thought

Pierrick DECHAUX

2015.10

Maison des Sciences Économiques, 106-112 boulevard de L'Hôpital, 75647 Paris Cedex 13
http://centredeconomiesorbonne.univ-paris1.fr/
ISSN : 1955-611X

Conceptualizing the formation and role of expectations before 1950: George Katona's thought

Pierrick Dechaux*

May 14th, 2014

Very preliminary version. Please do not quote or cite without author's permission.

Abstract

This article analyzes Katona's theory of expectations and compares it to that of Keynes and Hicks. It discusses the implicit and explicit debates on the introduction of psychology in economic theory. The aim of this paper is twofold: define Katona's thought and examine the impact of his work on the debate on expectations in macroeconomics. This paper shows that Katona is the only author, to our knowledge, who develops both an empirical and theoretical research program on expectations that borrows from the epistemology of Keynes. While rediscovering Katona's work, this paper contributes to highlight the forgotten methodology that initiated the construction of confidence (or sentiment) indexes. It also discusses the implicit and explicit debates on the introduction of psychology in economic theory.

Keywords: George Katona, Keynes, Hicks, Psychology, Expectations theories, Expectations measures, Macroeconomics

JEL classification: B22, D84

* PhD candidate - University Paris 1 Panthéon-Sorbonne, 106-112 bvd de l'Hôpital. B.215, 75013 Paris FRANCE, e-mail: pierrick.dechaux@gmail.com.

Introduction:

> "At all times the vague panic fears and equally vague and unreasoned hopes are not really lulled, and lie but a little way below the surface. Perhaps the reader feels that this general, philosophical disquisition on the behavior of mankind is somewhat remote from the economic theory under discussion. But I think not." (Keynes, 1937, pp. 214-5)

George Katona is one of the first psychologists[2] having studied economic behavior. Katona's main contributions are both theoretical and empirical, and aim at explaining and predicting fluctuations in demand at the macroeconomic level. Today, the empirical work of Katona is widely used[3], but its users don't pay much attention to its theoretical framework[4].

Among the emerging contributions involved in the rediscovery of the author, Edwards (2010) centers his study on the influence of Katona in the *full-cost* and in the *measurement without theory* controversies. However, these controversies do not reflect Katona's main interest for macroeconomics, especially his research program on expectations.

In the 1950s, the issue of expectations was not clearly delineated in economic thought. Major disagreements are principally centered on the question of the formation of expectations. Two visions can be highlighted in this debate. The first vision (defended by Keynes) rejects the analysis of the formation of expectations outside the scope of the economy, and considers expectations as exogenous variables. The second (defended by Hicks) considers expectations as endogenous variables, and thus directly confronts the problem of the formation of expectations by seeking to express them in relation to traditional economic variables (price, income, profits, etc.).

An important methodological issue thus exists, which finds its roots in the debate of the nature of uncertainty.

[2] He is considered, along with Simon, as one of the fathers of *old behavioral* economics (Sent, 2004, Hosseini, 2011)

[3] We refer here to the *Consumer Sentiment Index* and its affiliates all around the world.

[4] "The contributions of Herbert Simon – thanks perhaps to his well-known notions of bounded rationality and satisficing – have been acknowledged by the economic profession, not to mention that he was awarded the Nobel Prize in economics for those contributions, however, much of the contributions of Geoge Katona have been overlooked. As also indicated by Jose Edwards (2010, p. 208), Katona was also misunderstood by economists. He has also been ignored by historians of economic thought" (Hosseini, 2011)

For Knight[5], some events are uncertain in the sense that, objectively, no probability function can be constructed that would allow to give an account of the phenomena. This difficulty is not related to technical constraints but to an ontological assumption of the inexistence of facts in the reality that would allow for this construction. Uncertain events, in his words, are "far too unique" (Knight, 1921, p. 231). This assumption on the *real* indeterminacy of certain phenomena leads Knight to the idea that "the conception of an objectively measurable probability or chance is simply inapplicable"(*ibid.*). For Knight, these phenomena do not reflect *objective* probabilities (e.g. the probability to throw heads or tails) but *subjective* probabilities (e.g. the probability that an investment yields a profit of X euros through the next ten years). The literature diverge on the interpretation of Knight's subjective probabilities (Lawson, 1988). The question is whether, for Knight, subjective probabilities can be measured and expressed numerically as it is common to do for objective probabilities. The discussion of this issue is beyond the scope of this article. It should be noted, however, that the distinction between risk and uncertainty foreshadows a methodological distinction for Knight, which separates the study of objective probability from the study of subjective probabilities. This methodological distinction separates the study of phenomena related to risk from the study of phenomena related to uncertainty. The typical example of a probability judgment under uncertainty is for Knight, "those opinions [and not scientific knowledge] as to the future course of events, which [...] actually guide most of our conduct" (Knight, 1921, p.230).

The study of these opinions is impossible for Knight, for individuals' mind would be inaccessible :

> "The real logic or psychology of ordinary conduct is rather a neglected branch of inquiry, logicians having devoted their attention more to the structure of demonstrative reasoning. This is in a way inevitable, since the processes of intuition or judgment, being unconscious, are inaccessible to study. Such attention as has been given to the problem of intuitive estimation has been connected with and largely vitiated by confusion with the logic of probability." (Knight, 1921, p.230)

However, as it appears in the end of the quote, Knight considers that this study should not fall under the scope of classical probabilities. Keynes (1921, 1936) confirms in quite a different manner the same distinction (Lawson, 1988). He conceives that the economic world is subjected to radical uncertainty and therefore protests against the use of classical probabilities to explain the formation of expectations. In place of these, he prefers to study agents through *conventions* or through their *psychology*. As he explicitly puts it in his Chapter 12, the study

[5] The distinction between two forms of uncertainty goes back to Knight (1921). Risk according to Knight means "measurable uncertainty" (Knight, 1921, p.233) and uncertainty "unmeasurable uncertainty".

of long-term expectations will mainly depend "upon the actual observation of markets and business psychology" (Keynes, 1936, p. 149) assuming that this study is on a "different level of abstraction from most of his book" (*ibid.*). In more general terms, considerations on the existence of radical uncertainty lead authors like Knight and Keynes to defend the use of concepts for studying behavior, different from the concepts of classical probabilities applied in the context of economic models (Lawson, 1985, 1988). Expectations, in other words, cannot be seen as endogenous variables. They are given data that are not *a priori* explained by economic laws. The issue of the epistemological nature of uncertainty, therefore, has major implications for the boundaries between economics and other disciplines, primarily psychology and sociology. This digression highlights the challenges and difficulties of Keynes's work. Indeed, as we shall see, Keynes fully acknowledges his methodological position and rejects the analysis of expectations outside the field of economics. However, he puts in place simple psychological considerations which are subject to many ambiguities. The position of a researcher like Katona finds thus its full meaning in this context as filling the gap of the analysis, consciously ignored by some economists.

In his 1951 *Psychological analysis of Economic bahavior*[6], Katona discusses the theories of two key authors in this debate, Keynes and Hicks[7]. The book is based on a critical assessment of the conception of the agent that these economists use in their theory. More precisely, he challenges the separation between economics and psychology initiated by the economics predecessors. In a conference held in 1955, Katona argues that there are four possible approaches to the problem of expectations (Katona in Bowman, 1958, p.66)[8]. Each of them takes a strong assumption on the epistemological boundary between economics and psychology. Katona rejects the first three, and adopts the fourth.

i) "Expectations are the result rather than the cause of given economic and financial developments." (*ibid.*)

ii) "Expectations originate in past economic or financial developments in a specific and predictable manner"(*ibid.*).

[6] Two books were published by Katona before his (1951) major work. The first, *Organizing and memorizing* (1940) is a book of psychology. The second, *War without inflation* (1942), examines the problem of inflation in wartime.

[7] Wicksell (1898), Knight (1921) and Myrdal (1931) are founding fathers on expectation theory. However, expectations have become essential in economics as a result of the 1929 crisis (Hart, 1951) and the subsequent publication of Keynes's works (1930, 1936).

[8] Notable participants of the conference are: Meredith, Simon, Henry, Katona, Lauterbach, Georgescu-Roegen, Modigliani and Cohen, Shackle, Edwards, Brem, Mack, Peck, Eisner, Friend, Darcovich. The proceedings are published in MJ Bowman, *Expectations, Uncertainty, and Business Behavior*¸ A Conference Held at Carnegie Institute of Technology, October 27-29, 1958.

iii) "Expectations are assumed to originate in emotional or impulsive factors wich are believed to be neither understandable nor predictable." This approach points toward the conclusion that "economic investigations should be restricted to economic and financial 'facts'"(*ibid.*, p.67). Psychological factors are thus considered as responsible for "unexplained variations ... attributed to random errors"(*ibid.*).

Adopting i) or ii) leads to neglect the effect of expectations because these can be reduced to economic variables. Approaches i) and ii) correspond to the endogenous theory of expectations. The third approach is different as it enables a direct effect of expectations. Expectations are not supposed to be exogenous. However, economists' analytical tools are inappropriate to the psychological study of the effects of expectations. Economists who adopt iii) thus simplify the analysis and study expectations on the basis of economic information. This third view characterizes Hicks's theory of expectations[9].

iv) This last approach argues that direct study of expectation is possible :

> "The fourth position argues that direct study of expectations is both scientifically feasible and important. It postulates that changes in expectations originate in a variety of economic, political, social, or personal developments. Why not substitute for expectations those factors that determine them? Because the origin of expectations is a very complicated process about which we may gather information after the event; but enumeration of the multitude of environmental 'facts' will not suffice to show in advance how these developments are perceived and what expectations they produce. Therefore we have no recourse but to measure directly the prevailing expectations which help to shape business action." (Katona in Bowman, 1958, p.67)

The first three approaches do not allow the establishment of causal mechanisms between expectations and economic variables. They reduce the determinants of expectations to economic variables, and take away any specific influence of expectations. Expectations do not have, as a result, a proper effect on the fluctuations of the economy[10]. The fourth approach is for Katona the only way to overcome this difficulty. He wants to study the expectations for what they are, that is to say exogenous variables, through a theory that is specific to their nature: psychology.

Katona does not refer to the ontological debate on the nature of uncertainty and its impact on the study of expectations, but he indirectly promotes a strong position in this debate. Indeed,

[9] The epistemological position of Keynes does not meet any of the categories hitherto mentioned. He accepts and develops the psychological nature of expectations. But, his study is limited to some mecanisms which are not properly psychological.

[10] Hart reaches the same conclusion in the preface of the second edition of his book *Anticipations, uncertainty, and dynamic planning* (1940) in 1951 : "The fact that the expectational approach has not raised the flag of sovereignty over a large area of formal theory [...] goes back, I think, to the difficulty of formalizing the way expectations are formed. If we assume that the framing of expectations is an "endogeneous" process - that expectations depend strictly on the previous sequence of economic - quantitative events - and that the pattern is stable, then any formal model will show events as a function of expectations, and expectations as a function of earlier events. In this case, events can be reduced to a function of earlier events. The result is a clearcut "sequence analysis" in which anticipations need not appear explicitly - formally a *mechanical dynamics*, with an *expectational dynamics* between the lines." (Hart, 1951, pp. viii-ix)

his methodological criticisms as well as his empirical work emphasize his will to study expectations in a framework different from that of probabilistic reasoning. On the contrary, he pledges for the development of a psychological and sociological analysis, which interrogates extensively economic actors' conventions and the origin and nature of their confidence, their optimism or their pessimism. Katona, therefore, has a particular conception of economic phenomena in which the study of agents' judgments, hunches and rules of conduct is central.

This article highlights that Katona's study follows the Keynesian conception of expectations [11]. As a consequence, his study opposes the framework adopted by people like Hicks in 1939, who tried to conceptualize expectations as endogenous parameters. However, Katona does not intend to stand up against all the assumptions and results of economic theory, but to provide a different and complementary perspective. Indeed, Katona tacitly adopts many conclusions put forward by economic theory. Radical uncertainty for Keynes has the following consequences that are starting points for Katona's work : (i) expectations are not measurable by classical probabilities. (ii) they are exogenous, conventional and depend on the underlying social context and history (Lawson, 1985). (iii) expectations undergo erratic variations that are unrelated to objective underlying economic causes.

Katona's work has not been identified or sufficiently studied in the literature on expectations in economic thought. Some works, such as Lawson's (1985, 1991), are concerned with the methodological implications of the postulate of radical uncertainty on the study of the behavior of agents. The shape of the ideal research program that Lawson draws strikingly correspond to the work of Katona.

The aims of this article are the following. i) To define Katona's thought in the intellectual context of the period. ii) To assess the impact of the work of Katona on the debate on expectations in macroeconomics, and to show that Katona is the only author, to our knowledge, developing a research program studying the formation of expectations and their effects in a world of radical uncertainty. iii) The background objective, certainly the most important, is to highlight the theoretical aims behind Katona's empirical approach. The latter seeks as much to explore agreements underlying the actions of individuals as to build barometers to predict fluctuations in economic behavior at the macro level. This article finally participate to the rediscovery of the author.

[11] This finding is paradoxical because Katona, from the 40s until his last publication in 1980, will be very severe *vis-à-vis* Keynes. The latter is put forward by Katona for explaining that economists are misleading.

The article briefly studies, in the first two parts, Keynes's and Hicks's theory of expectations. The article pays particular attention to the positioning of these two authors in relation to the introduction of psychology in economic theory. While Keynes recognizes an important role for psychology trying to incorporate it in his analysis, Hicks avoids the issue and restrains the analysis of expectations to economic determinants. The paper shows that these two theories give rise to methodological problems at the roots of Katona's work. On the one hand, Keynes does not provide tools to measure expectations and their effects. Moreover, he only briefly explores the mechanisms of formation of expectations, his psychological laws taking the form of postulates. On the other hand, Hicks, to circumvent the problems faced by Keynes, eliminates the influence of external factors on expectations and, therefore, provides an incomplete analysis of the formation of expectations. In its third part, the article explains the foundations of Katona's theory of expectations, and its results. It shows how this analysis is articulated with that of Keynes's and Hicks's. Unsuspectedly, Katona, despite his criticisms, built a theory that borrows heavily from the epistemology of Keynes.

I) Keynes's psychological assumptions on the formation of expectations

This section discusses some implications of Keynes's theory on the role of expectations. The structure of the argument is as follows. (1) Keynes departs from the classical analysis of the long term equilibrium. He focuses his study on the short term, and pays great attention to economic fluctuations and their causes. Expectations take the lead role in the explanation of this dynamic and are conceptualized through *psychological laws*. (2) It will, then, be necessary to consider the nature of those laws and their origin. (3) These laws, however, are only briefly demonstrated. Keynes does neither explain what the expectations are, nor does he offer appropriate tools to measure the effects of expectations.

I.1) Keynes's introduction of psychological determinants

Keynesian theory is built on the rejection of the method, of some assumptions and of some conclusions of the "classical" economics[12]. Classical economics is alternately referred to as "disastrous" and "misleading" (Keynes, 1936, p. 3), a refuge for "Euclidean geometers" in a "non-Euclidean world" (*ibid.*, p. 16) or a "garden" cultivated by "Candides" "having left this world" (ibid., p. 33). For Keynes the classical theory is a study of a "special case" which does

[12] Keynes refers to Ricardo, James Mill, Stuart Mill, Marshall, Edgeworth and Pigou as representatives of "classical" economics.

not happen to be the "economic society in which we actually live" (ibid., p. 3):

> "But although the doctrine itself has remained unquestioned by orthodox economists up to a late date, its signal failure for purposes of scientific prediction has greatly impaired, in the course of time, the prestige of its practitioners. For professional economists, after Malthus, were apparently unmoved by the lack of correspondence between the results of their theory and the facts of observation" (Keynes, 1936, p.33)

Classical economists, for Keynes, are primarily attracted by the characteristics of a logically coherent system, like Euclidean geometry[13]. They are then condemned to deliver vain thoughts in a world that does not satisfy this logic. It is worth noting that what Keynes's criticisms here are not against the idea of a logical system itself, but against the unfounded prevalence of this kind of system as a framework to study the real world.

A major consequence of this critic is the necessity to reintroduce time in economic analysis (Robinson, 1962, p.73). Keynes puts aside the study of long-term equilibrium determinants to focus on short-term determinants. In this perspective, he introduces the idea of radical uncertainty about the future and explores the cognitive mechanisms that allow agents to behave, in each period, in this state of ignorance. This reintroduction of time is present through three concepts, (i) the *marginal propensity to consume*[14], (ii) the *preference for liquidity*[15], (iii) the *schedule of the marginal efficiency of capital*[16].

Each of these concepts is linked to psychological patterns which carry in themselves the time of the general theory. It is thus the psychology of actors that holds the explanation of their action in the present, when they take into account changes in the future. Keynes's psychological assumptions, however, are not analytical. So, his economic system is not constrained by logical necessity, but by "qualitative" scientific knowledge (Berthoud, 1999):

> "Now, since these facts of experience do not follow of logical necessity, one must suppose that the environment and the psychological propensities of the modern world must be of such a character as to produce these results. It is, therefore, useful to consider what hypothetical psychological propensities would lead to a stable system; and, then, whether these propensities can be plausibly ascribed, on our general knowledge of contemporary human nature, to the world in which we live." (Keynes, 1936, p.250)

[13] "The classical theorists resemble Euclidean geometers in a non-Euclidean world who, discovering that in experience straight lines apparently parallel often meet, rebuke the lines for not keeping straight—as the only remedy for the unfortunate collisions which are occurring. Yet, in truth, there is no remedy except to throw over the axioms of parallels and to work out a non-Euclidean geometry. Something similar is required to-day in economics." (Keynes, 1936, p.16)

[14] "The psychological time-preferences of an individual require two distinct sets of decisions to carry them out completely. The first is concerned with that aspect of time-preference which I have called the propensity to consume, which, operating under the influence of the various motives set forth in Book III, determines for each individual how much of his income he will consume and how much he will reserve in some form of command over future consumption." (Keynes, 1936, II, p.166)

[15] "But this decision having been made, there is a further decision which awaits him, namely, in what form he will hold the command over future consumption which he has reserved, whether out of his current income or from previous savings." (Keynes, 1936, p.166)

[16] "The schedule of the marginal efficiency of capital is of fundamental importance because it is mainly through this factor (much more than through the rate of interest) that the expectation of the future influences the present." (Keynes, 1936, p.145)

What is the nature of these "psychological propensities"? Where does this “general knowledge of contemporary human nature” comes from? To answer these questions, it is necessary to study Keynes's conception of uncertainty.

I.2) The nature of uncertainty and the crucial role of conventions.

Keynes's conception of expectations can be traced back to his *Treatise on Probability* (1921) (Lawson, 1985; Davidson, 1982, 1991). In this book, Keynes criticizes the idea that subjective probabilities could be replaced by calculable certainty equivalents. He observes this tendency among classical economists:

> "at any given time facts and expectations were assumed to be given in a definite and calculable form; and risks, of which, tho admitted, not much notice was taken, were supposed to be capable of an exact actuarial computation." (Keynes, 1937, pp. 212-3)

Contrary to this view, uncertainty in the *Treatise on Probability* is understood, at the individual level, as a set of non-measurable probabilities (Postel, 1999). Thus, the rationality of action must be redefined accordingly. Keynes expresses this idea in a letter to Townshend in 1938:

> " In making a decision we have before us a large number of alternatives, none of which is demonstrably more 'rational' than the others, in the sense that we can arrange in order of merit the sum aggregate of the benefits obtainable from the complete consequences of each. To avoid being in the position of Buridan's ass, we fall back, therefore, and necessarily do so, on motives of another kind, which are not 'rational' in the sense of being concerned with the evaluation of consequences, but are decided by habit, instinct, preference, desire, will, etc. All this is just as true of the non-economic as of the economic man. But it may well be, as you suggest, that when we remember all this, we have to abate somewhat from the traditional picture of the latter." (Keynes, 1938)

Keynes did not make a detailed study of the concepts of "habit, instinct, desire" and "will" of individuals in the *General Theory*. To account for the real dynamics of the economy he constructed a concept of rationality based on a radical theory of behavior: under uncertainty, agents rely on conventions :

> "Peace and comfort of mind require that we should hide from ourselves how little we foresee. Yet we must be guided by some hypothesis. We tend, therefore, to substitute for the knowledge which is unattainable certain conventions, the chief of which is to assume, contrary to all likelihood, that the future will resemble the past." (Keynes, 1937[2], p.13)

Winslow (1986) highlights a connection between Keynes's three fundamental psychological laws and Freud's psychoanalysis. However, even if Winslow identifies a close relationship between these two theories, he insists on the fact that Keynes never made explicit reference to Freud (Winslow, 1986, p.577). In a general manner, the scientific basis of Keynes's psychological laws is not explained (Katona, 1946, p.45, 1951, p. 134-135).

I.3) The formation of expectations and their effect

Keynes's thought on expectations goes through technical and methodological difficulties (Hodgson, 1985). Two main difficulties can be raised. On the one hand, he does not give extensive details on how long term expectations are formed, and greatly simplifies the study for short term expectations. As a consequence, on the other hand, expectations appear as given variables whose impact is left to anyone's judgment.

About the formation of long-term expectations, Keynes is very brief when he explains the causes of their variations. First, for Keynes, the expected return on investments is the result of a conflict between the logic of participants in financial markets (*speculation*) and the logic of producers (*enterprise*). However, the balance of power between these two patterns is not strictly studied:

> "If I may be allowed to appropriate the term *speculation* for the activity of forecasting the psychology of the market, and the term *enterprise* for the activity of forecasting the prospective yield of assets over their whole life, it is by no means always the case that speculation predominates over enterprise.." (*ibid.*, p. 158, original emphasis)

This difficulty is raised by Hodgson (1985), who concludes that Keynesian considerations on psychology are best explained under the prism of an institutionalist theory. Firms and financial market agents belong to different institutions, each of which is governed by its own rules. This explains the different mechanisms that rule the decision making of firms, and financial market agents.

On the other hand, Keynes attaches great importance to what he calls *confidence*. Confidence influences the prospective yield of assets both under the speculative and the enterprise motives. However, Keynes remains vague about confidence explanations. He does not provide any means to study them, and only makes a few general points:

> "In estimating the prospects of investment, we must have regard, therefore, to the *nerves* and *hysteria* and even the *digestions* and *reactions to the weather* of those upon whose spontaneous activity it largely depends." (Keynes, p.162, my emphasis)

Short term expectations, on the other hand, are formed according to an extrapolative logic among producers and consumers. For Keynes, this assertion is justified in the case of producers by the most prominent convention (see quote above p.8). Keynes suggests then that this convention may break apart due to newly received information:

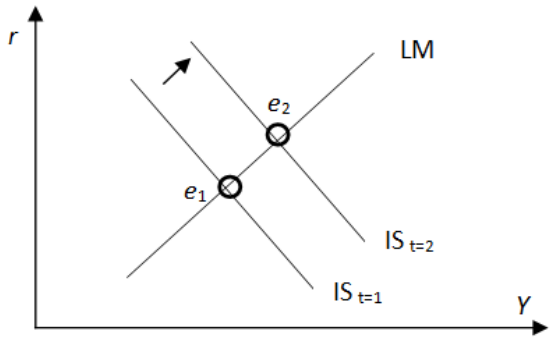
> "Accordingly it is sensible for producers to base their expectations on the assumption that the most recently realised results will continue, except in so far as there are definite reasons for expecting a change." (Keynes, 1936, p.51)

Among consumers, the justification is different. Indeed, for Keynes, consumers' expectations

are not driven by conventions, but are randomly expressed and canceled on average:

> "We must catalogue this factor [changes in expectations of the relation between the present and the future level of income] [...]. But, whilst it may affect considerably a particular individual's propensity to consume, it is likely to average out for the community as a whole." (Keynes, 1936, p.95)

On the problem of the effects of expectations, Keynes's analysis is incomplete. The dynamics of transition from one equilibrium to another is explained by movements in investment. It is likely to vary from one period to another because long-term expectations vary (through the marginal efficiency of capital and the liquidity preference). However, the analytical system of Keynes does not establish any link between a shock in expectations and the subsequent variation of the investment. Long-term expectations are ultimately left as exogenous data, and Keynes gives no formalisms and no tools to precise their effect. The general interpretation of a shock on expectations is represented in the IS-LM model as follows:



Effect of a positive shock on the expected profits

A shock on expectations gives rise to a change from one equilibrium to another. However, neither the shock in question, nor the resulting equilibrium is measurable. For Hicks, this greatly affects the scope of Keynes' analysis:

> "When I reviewed the *General Theory*, the explicit introduction of expectations was one of the things which I praised; but I have since come to feel that what Keynes gave in one hand, he took away with the other. Expectations do appear in the *General Theory*, but (in the main) they appear as data; as autonomous influences that come in from outside, not as element that are moulded in the course of the process that is being analyzed. Perhaps it is the famous (but now I think rather wicked) chapter on "Long-term expectations" which is the root of the trouble" (Hicks, 1969, p.313).

As Hicks points out, Chapter 12 is not in contradiction with the analysis of the underemployment equilibrium. This chapter can be read as an explanation of the possibility of the emergence of influent exogenous fluctuations. Finally, in this chapter, Keynes seems to target a normative goal. Financial market's valuation of investments returns is not efficient for Keynes. So if the policy makers' goal is to protect the economy from large fluctuations, they should limit the influence of financial markets :

> "I expect to see the State, which is in a position to calculate the marginal efficiency of capital-goods on long views and on the basis of the general social advantage, taking an ever greater responsibility for directly organising investment; since it seems likely that the fluctuations in the market estimation of the marginal efficiency of different types of capital, calculated on the principles I have described above, will be too great to be offset by any practicable changes in the rate of interest. " (Keynes, 1936, p. 164)

Keynes even expresses a more radical version of the same conclusion. As long-term expectations are inherently unstable, and as the determinants of this instability does not seem to be clearly identified and directly influenced by public policy, the ideal solution (understood here as the logical solution of the problem) is to constrain agents expenditure:

> "The only radical cure for the crises of confidence which afflict the economic life of the modern world would be to allow the individual no choice between consuming his income and ordering the production of the specific capital-asset which, even though it be on precarious evidence, impresses him as the most promising investment available to him." (*ibid., p.161*)

Despite the destabilizing nature of long-term expectations, it is worth noting that in Chapter 18, Keynes shows that in the general case, expectations shocks are absorbed by other determinants (interest rates, prices, diminishing returns). Thus, apart from the extreme case discussed in Chapter 12, the expectations do not prevent the equilibrium. This is important since it contrasts the role of expectations in Keynes's system. Expectations explain aggregated income fluctuations, but are not generating dynamic mechanisms. Keynes's dynamic, as highlighted in Chapter 18, explains how the economy is capable of finding a level of income equilibrium despite shocks on expectations.

These arguments, therefore, highlight several limitations in Keynes's analysis of expectations. Psychological factors are not inspired by psychological theory: they are postulates. Long-term expectations are given and Keynes did not provide tools to integrate them into economic analysis. The analysis of Keynes can thus be considered as incomplete.

These remarks do not seem to contradict Keynes's ideas. The rather crude analysis of producers and consumers' expectations can be understood as having been deliberately neglected by him. Keynes may have considered that he had not much to say about it, and that these problems could be simplified as a first approximation (Lawson, 1985, p. 924). The analysis of the psychology of consumers and producers could therefore be the subject of two other chapters like chapter 12.

In contrast to Keynes' theory, Hicks (1939) proposes an alternative treatment of expectations.

II) The analytical development of the concept of expectation by Hicks

This part examines Hicks's treatment of expectations in *Value and Capital* (1939). First, we emphasize Hicks's will to develop his theory in a mathematical, logical and well-

defined framework, in opposition to Keynes. Second, we assess the limits of Hicks's project. In a nutshell, Hicks doesn't explicitly explain how expectations are formed and he fails to theorize their effect on economic fluctuations.

II.1) Removing non-economic explanations from the formation of expectations

Hicks intended to elaborate his own explanation of economic disequilibrium upon the critic of Keynes's work :

> "He [Keynes] succeeds in doing so [to cut through the tangle of difficulties that beset him] just because he makes free use of his superb intuition and acute observation of the real world, in order to be able to to discard the inessentials and go straight for the essential. Yet this same power has its drawbacks […]. It is, indeed, particularly desirable for the reader to be able to separate out those things which are the fruit of *pure logic*, which he can thus be compelled to believe, from those things which are the fruit of Mr. Keynes's own point of view on social questions, where he may prefer to differ." (Hicks, *Value and capital*, 1939, p.4, my emphasis)

Following Keynes, Hicks considers expectations as the main explanation for instability. However, he wishes to substitute Keynes's "superb intuition and acute observation of the real world" with "pure logic". He will thus construct an analytical concept of expectations with the parameter of *elasticity of expectations*[17].

> "I define the elasticity of a particular person's expectations of the price of commodity *X* as the ratio of the proportional rise in expected future prices of *X* to the proportional rise in its current price." (Hicks, 1939, p.205)

Hicks is aware[18] of the simplification he operates through this definition. Prior to the introduction of the concept of elasticity of expectations, he details and puts away the factors apart from prices that may influence expectations. Hicks distinguishes two kinds of factors. (i) Non-economic factors "the weather, the political news, people's state of health, their 'psychology'" [19] (Hicks, 1939, p.204). (ii) Economic factors "still not closely connected with actual price-movements" like "market superstition", and news bearing on future movements of demand or supply (*ibid.*). These influences are treated as autonomous factors[20]:

> "For the purpose of our inquiry, changes in price-expectations which result from either of the first two

[17] Hicks will drop this concept in his subsequent book *A Contribution to the Theory of the Trade Cycle* (1950). Kaldor (1951) will regret the "distinguished" (p. 839) considerations on expectations in *Value and Capital* and criticize the simplication in Hicks's 1950's book: "the [...] assumption that the elasticity of expectations is always unity [...] is not a tolerable hypothesis [...]. Long-run expectations must be *tied to some trend or norm*, at any rate within certain limits, if the economic system is to possess any degree of *rationale or stability*." (ibid., p. 839, my emphasis). See also Kaldor, *Speculation and Economic Stability*, 1939.

[18] This earned him the recognition of Katona (1946, 1951, 1975) who considers Hicks as one of the more alert economists on the subtle treatment of expectations.

[19] Hicks leaves the term psychology under quotes and does not specify what he means by it.

[20] Hicks can be considered as one of the key authors to have relegated psychology from economics. His thought continues the movement initiated by Pareto, and removes the psychological concepts of economic analysis by substituting them with the rational choice theory (Bruni et Sugden, 2007).

> sorts of influence *have to be treated as autonomous changes*. The current economic situation may perhaps react along these channels in mysterious and indirect ways; *but we cannot hope to do anything about it*. We must never forget that price-expectations are liable to be influenced by autonomous causes; otherwise we must leave it at that."(Hicks, 1939, p.204, my emphasis)

Having warned that he will only look at the influence of prices on expectations, Hicks examines the nature of this influence. The method then used by Hicks is a method of classification[21]. In a given economy (given prices, interest rate, technology) Hicks details the various movements of economic variables according to cases in which elasticities of expectations are 0, 1, -1, and intermediate cases and also exceptional cases where elasticities exceed 1. An analysis such as this poses two problems. On the one hand, it is obvious that this analysis is too tedious given the infinity of possible cases. On the other hand, this analysis is of limited interest if we are not able to determine which elasticity of expectations is likely to prevail in a given state of the economy.

II.2) The expectations formation in *Value and Capital*: an unfinished project

If the concept of elasticity of expectations seems to be a quantitative tool capable of supporting a mathematical logical reasoning, it forms in itself an empty shell. The absence of a causal mechanism accounting for the influence of price changes on the elasticity of expectations is evident in many passages:

> "The elasticity of expectations will be greater than unity, if a change in current prices makes people feel that they can recognize a trend, so that they try to extrapolate; it will be negative if they make the opposite kind of guess, interpreting the change as the culminating point of a fluctuation." (Hicks, 1939, p.205)[22]

In Part IV of *Value and Capital* devoted to the equilibrium and disequilibrium conditions, Hicks wonders about the possible links between exogenous shocks (investment or price) and the formation of a certain level of elasticity of expectations. Four types of arguments can be distinguished in Hicks (Rubin, 2011). (i) "in the upward phase of the cycle, the agents develop elastic expectations because the prices of goods they sell, or purchase, increase" (Rubin, 2011, p.17). (ii) "Optimism spreads itself through the community." (iii) A major explanation of the elasticity of expectations is the "loss of sense of normal price." (iv) In recession, falling prices feeds the "psychology of depression". Arguments (i), (ii) and (iii) seem to emerge from a psychological intuition of the same order as that of Keynes's. In this

[21] "If we neglect the possibility that a change in the current price of X may affect to a different extent the prices of X expected to rule at different future dates, and if we also neglect the possibility that it may affect the expected future prices of other commodities or factors (both of these are serious omissions), then we may classify cases according to the elasticity of expectations." (Hicks, 1939, p.205)

[22] See also Hicks, 1939, p. 244, pp. 250-2, p. 254

sense, the project of founding a logical analysis of the determinants of economic dynamics seems to fail because Hicks ultimately rests on psychological, sociological and historical mechanisms.

We reach the conclusion that those arguments are not convincing, and that Hicks faces a real "theoretical weakness" (*ibid.*, p.18)[23]. Three reasons can be advanced to explain this weakness. The first reason is technical and derives from the state of "skills in mathematical economics and the state of development of the general equilibrium theory in the 1930s" (*ibid.*). The second reason is a conceptual incoherence: "by adopting the concept of temporary equilibrium, Hicks rejects the idea of a convergence to a normal equilibrium. How then justify the anchoring of inflation expectations on the belief in normal prices?" (*ibid.*). The third reason is methodological: "It seems that Hicks had considered that the problem of the formation of expectations goes beyond the scope of pure theory."

> "Obviously, this is not an easy task, and, above all, it is not one which can be performed in a mechanical fashion. It needs judgment and knowledge of business psychology much more than sustained logical reasoning. The arm-chair economist will be bad at it, but he can at least begin to realize the necessity for it, and learn to cooperate with those who can do it better than he can." (Hicks, 1935, pp. 13-4)

The first two reasons given by Rubin are characteristic of a common understanding of the problem of the integration of expectations in economics before the rational expectations "revolution"[24]. The third reason is of a different nature and opens the analysis of expectations to psychology.

Keynes conceptualizes expectations as exogenous variables but he does not explain the origin of conventions or the precise nature of these. Furthermore, Keynes did not build tools to predict economic fluctuations. Hicks, for his part, removed all psychological aspects of expectations. Expectations are then designed as endogenous variables driven by prices. While this treatment appears more flexible than Keynes's one, it seems not to be very useful, as Hicks doesn't develop a clear study of expectations formation.

But more importantly, a comparison of these two authors shows that expectations don't have

[23] In 1951, Hart reached the same conclusions: "We may assume we know expectations and plans at the outset; but after a few "periods" the influence of revisions accumulates, so that any long sequence can only be illustrative. The most we can hope for along this line is to show that some types of starting-points will set up "cumulative processes" - sometimes also that such processes will presently reverse themselves. Even the rather loose generalizations about periodicity and amplitude of fluctuations Hicks offers in his Trade Cycle threaten to dissolve into mist." (Hart, 1951, pp. viii-ix)

[24] Muth's criticism of adaptive expectations (1961) develops the same argument. Blame macroeconomists because they don't admit sufficiently rational agents (Muth, 1961, p. 316), is to emphasis the logical inconsistency that necessarily follows the introduction of an external cognitive mechanism to economic theory. Rubin's second argument is essentially the same : Why would there be a "normal price" known by economic agents if economic theory does not give rise to one? The suggested solution is : If agents are to be supposed to follow a normal price, this price must be specified by the theory. But, in a dynamic framework, this can only be done by assuming a total interdependence between agents' expectations and the model (which is the idea at the basis of rational expectations).

the same role in their theories. Keynes assigns an external role to expectations since he is not interested in putting forward a dynamic analysis of the cycle. Rather, he seeks to explain the determinants of underemployment equilibrium, and how this equilibrium is likely to change. Hicks adopts another vision. He seeks to explain the three phases of the cycle through an interaction between the formation of expectations and changes in economic variables (Hicks, 1939, pp. 295-98.). To do this, he removes from the analysis all possible determinants of expectations except the price.

Each of these views (Keynes's and Hicks's) have advantages and limits. Keynes's concept of expectation is vague and doesn't offer practical application. In the case of Hicks's concept, the expectations are better defined, but his definition may seem arbitrary and the issue of the expectations formation remains a challenge, which will become central for macroeconomics in the second half of the twentieth century.

III) Katona's conception of expectations

First, Katona operates a reversal of the problem by redefining the concept of expectations through the concept of attitudes. This reversal, while positioning his theory in the field of psychology, explains why he centers his study on the measurement of expectations. Second, this article illustrates the different aspects of Katona's work. Finally, the article situates Katona's work in relation to that of Keynes and Hicks and introduces its limits.

III.1) Expectations as "attitudes"

> "'Expectations are subjective notions about things to come'. The terms 'subjective' and 'notion' are important in this definition, for an expectation is not the same as information about prospective happenings. There is information, and there are economic data other than expectations that reveal forthcoming development." (Katona in Bowman, 1958, p.59)

This definition of expectations operates a switch from that of traditional economists. Indeed, Katona breaks the link that economists establish between expectations and economic information available to the agent[25]. Expectations are distinct from formal predictions that stem from economic models even if they include "judgments about their potential realization" [26]. For Katona, the information on which expectations are constructed does not play a crucial role. Thus, the fact that expectations are constructed on objective criteria (objective in relation

[25] This link is clearly apparent in the extrapolative expectations theories, where agents select relevant information like the evolution of past prices. It is, furthermore, at the origin of the definition of rational expectations: "Expectations, since they are *informed predictions* of future events, are essentially the same as the predictions of the relevant economic theory." (Muth, 1961, p.316, my emphasis)

[26] This aspect of expectations is relatively close to the definition of a probability relation in Keynes's *Treaty on probabilities*. These include a degree of subjective confidence on the likelihood of possible alternatives.

to the economic theory) is not a crucial matter for the researcher. Expectations exist primarily as subjective sentiments, and it is these sentiments that give rise to behaviors. Contrary to Keynes who leaves a blur on the determinant of long-term expectations, highlighting the influence of subjective factors such as "whim" or "confidence", Katona will consider many variables in order to represent this latent psychology that are at the origin of the agents' expectations.

Expectations are no longer a concept constructed *a priori* in the work of Katona. He substantializes expectations by redefining them in terms of a specific concept of social psychology: *attitudes*[27]. Attitudes are "generalized viewpoints with some affective connotation, which influence perceptions and cognitions and, above all, behavior" (Katona, 1958, p. 60). Expectations are "those attitudes that represent the extension of the time perspective into the future and shape current behavior" (*ibid.*). They have at the same time an emotional, cognitive and predictive content and for Katona "what has been referred to in the economic literature as 'business sentiment' or 'the state of business confidence' is a reflection of attitudes" (*ibid.*).

Expectations, at the individual level, are then seen as intervening variables according to the following diagram[28] :

$$S/X \rightarrow I \rightarrow R$$

S = specific change in the economic environment (*stimuli*)
X = frame of reference
I = intervening variables (expectations)
R = resulting behavior response

An example of stimuli would be a price increase. An expectation (intervening variable) would be the perception of a continuation of the increase or conversely that of a trend reversal. Finally, the resulting behavior could be a purchase in advance, or otherwise a postponed purchase. The nature of expectations (intervening variable) can explain how the same stimuli can produce different responses or how two different stimuli are capable of eliciting the same response. In other words, a price increase will, depending on the agent's expectation, cause various behaviors. The purpose of this scheme is to emphasis that expectations must appear explicitly and independently, because they are not determined by the stimuli. There are no possible function that could build *a priori* a link between the expectation and the stimuli (like

[27] Attitudes, for Katona, include: expectations, motives, aspirations, goals, values, frames of reference (Curtin, 1983, p. 509). However, Katona states that "... the terms used and their exact meaning is not very important" (Katona, 1951, p.36).
[28] See Curtin, 1983, pp. 512-3.

I(S) for example[29]). For Katona, this is however what economists do. They make short cuts between expectations and stimuli, having in hypotheses such functions as R(S) (linking behavior directly to stimuli) or R(I(S)) (linking behavior to stimuli, but with an "expectational dynamic between the line" (Hart, 1951)). Katona doesn't reject entirely the possibility of such function as R(S). In many instances, he considers that expectations don't have any significant role, and that traditional economics is sufficient to understand macroeconomic developments. However Katona is much more critic with the functions like R(I(S)), because it neglects the psychological nature of expectations and, thus, neglects their main interest which is, for Katona, their influence as independant variables. Katona's theoretical goal is then to determine how and when the intervening variables (expectations in the case of this paper) have an influence on behavior. As attitudes, expectations are given psychological variables that have to be measured:

> "The reasons for changes in expectations can be determined after the fact, but a change in expectations cannot be predicted from earlier objective developments. No shortcut exists which would replace the need to interrogate samples of consumers and businessmen about their expectations and their reasons for holding them." (Katona in Strumpel et *al.*, 1972, p.555)

Finally, these data can be studied in conjunction with economic determinants to determine possible functional relationships:

> "Empirical studies of investment decisions are possible and promising because businessmen's attitudes and expectations can be determined and can be related to their behavior. Measuring the amount of orders outstanding and the amount of capital - expenditure plans of individual firms - [...] - past sales, profits, current liquid assets, etc. - [represent a first step] [...] The same should be done with psychological variables [...] sales and profit expectations, opinions about prospective business trends, attitudes toward the prevailing and the expected technological situation, and attitudes toward availability of capital and interest rates. [...] The objective of such investigations would, therefore, be to determine what functional relations prevail in different circumstances..." (Katona, 1951, p.251)

Expectations are attitudes pointed toward the future that are likely to influence behaviors. They are then referred to as *ex-ante* data (Katona, 1958, p. 59-60), since knowing the state of expectations at a given time is likely to give clues on the future behavior of agents. Thus, Katona focuses on the study of the effects of expectations, including different kinds of expectations (inflation expectations, profit, stocks, interest rates, etc.). An important consequence of Katona's redefinition is that expectations only have sense if treated as exogenous variables.

III.2) Katona's explanation of the effects and formation of expectations

[29] We follow here the notation used in the diagram.

To measure attitudes, Katona uses a survey methodology based on representative samples at the national level[30]. The first survey, the *Survey on Consumer Finances*[31] will come up in 1946 at the *Survey Research Center*. This survey collects both attitudinal data, and accounting data on household assets. These data are collected through personal interviews, which could last from one to three hours, conducted by trained interviewers. Alongside the data from the *Survey on Consumer Finances*, Katona would develop monographic surveys on specific topics (Katona, 1945, 1952, 1968). If a major part of his work is devoted to consumption, Katona would also study the behavior of firms. This is for example the main theme of *Price Controls and Business* (1945) and *The quantitative study of factors determining business decisions* (1952)[32].

Given the scope of this article, which is to situate Katona's thought, the examples used here are illustrative, but they are by no means a summary of all the results obtained by Katona from 1946 to 1981. To illustrate Katona's study of the effects of expectations, we expose the example that Katona and Klein used in their paper published in 1952. The table below outlines the nature of the statistics constructed by Katona through the *Survey on Consumer Finances*:

[30] This article does not expose the historical origins of this method, nor does it discuss why Katona favors it. For more information on this matter, see Katona, 1951, p. 301-6.

[31] This survey is built along the same methodology used at the *Department of Agriculture* in the *Division of Program Survey* conducted by Rensis Likert. Katona will enter this division in 1942. The main actors of this division will create the *Survey Research Center* in 1946 which gave birth to the *Survey on Consumer Finances*.

[32] There are no explanations, as far as I know, on why Katona particularly focused on consumers. However, several hypotheses can be made. On the one hand, consumption is a major issue in the postwar years. Firstly there is a willingness to test the Keynesian consumption function. Second, the recessions of the 50s in the United States are imputed by important economists, such as Klein, to fluctuations in aggregated consumption not predicted by existing models. On the other hand, Katona sees the study of consumption and its determinants as a major challenge for the twentieth century because of the growing phenomena of mass consumption (the *affluence* of consumers in Katona's words). In 1976, he writes a short article, *Consumer investment versus business investment*, in which he states that fluctuations in consumer demand precede fluctuations in business investment. Katona had therefore in mind the idea that the economy is driven by demand, and more specifically by household demand. Finally, it would be interesting to see how institutional constraints could have influenced Katona's decisions. Nonetheless, Katona does not make any methodological difference between the study of consumers and the study of firms : "Consumer surveys, though they do not deal with business firms as such, determine the financial position and financial attitudes of all kinds of people, including businessmen. *Their methods, moreover, as we shall see later, are applicable to surveys conducted among business firms.*" (Katona, 1951, p.306, my emphasis).

TABLE 1

Good or Bad Time to Buy Durable Goods[1]

Opinion	June 1951	Early 1951
Good, or very good, time to buy	22%	32%
Good time in some ways, but not in others; or, it depends	15	13
Bad, or very bad, time to buy	53	50
Don't know	8	3
Not ascertained	2	2
All Cases	100%	100%
Reasons why good time to buy:		
Expected shortages	6%	20%
Prices going up, or not coming down	11	16
Quality good, may get worse	3	4
People can afford to buy now	3	2
Prices lower; over-supply of goods	3	*
Reasons why bad time to buy:		
Prices are high	48%	40%
Quality poor	5	4
Price controls will keep prices from rising	4	1
Conditions are unsettled	4	3

[1] The June 1951 question was: "Do you think this is a good time or a bad time to buy such large household items (furniture, house furnishings, rugs, refrigerators, stove, radio, and things like that)? Why do you say so?" The data for early 1951 are from the Survey of Consumer Finances. There the question read: ". . . looking at things in general, do you think it's a good time or a bad time to buy autos and large household items? Why do you say so?"

* Not ascertained.

[7] The survey report was issued for restricted circulation only; its summary was reprinted by numerous publications; see, for example, the *New York Herald Tribune*, July 19, 1951, financial page.

Katona and Klein derive the following results from these data: i) in 1951 consumers feel that it is not a good time to buy durable goods. ii) The main reason is that they feel that prices are high. It is therefore not the price expected in the future which influences the agent's opinion, but the past trends. iii) The variation found between early 1951 and mid 1951on the balance of opinion on the question "do you think this is a good time or a bad time to buy such large household item ?" is mainly due to the reversal of expectations on the possibility of a shortage caused by the Vietnam War.

We can see that these claims do not have a theoretical character. Expectations are here analyzed as external facts. Both assertions ii) and iii) cannot serve the purpose of making a general theory of expectations. However, they make a description of the current psychological state of consumers and the reasons underlying it[33].

Similarly, Katona studies conventions prevailing in the minds of agents about the consequences of various economic developments. In a survey conducted in 1979, Katona asks the question: "Do you think increasing your savings as much as possible in times of inflation is a good or a bad idea?" (Katona, 1980, p.75). He found that 69% of the sample responded that it was a good idea. He asks the question from another point of view: "Some people say that in times of inflation it's better to take on as much debt as possible, while others think that people should avoid taking on more debt. What do you think?". 79% of respondents think that

[33] "For example, income or price expectations are frequently assumed to be given by a simple combination of recent levels and rates of change of the corresponding objective variables. This procedure may not only be much less efficient than direct measurement, but one may also question whether a valid relationship exists between expectations and lagged values or rates of change of corresponding objective variables." (Katona, G., Klein, L.R., 1952, p.12)

it is better to avoid debt. For Katona, this study is able to reveal the beliefs prevailing in agents' minds and thus to understand the behaviors of agents facing specific economic developments. High inflation expectations, thus, are likely to generate savings behaviors contrary to what standard economic theory would predict. In addition, Katona seeks to identify the evolutions of these beliefs and therefore the concomitant evolution of behaviors in history. For him these beliefs are likely to change due to the "macrolearning process".

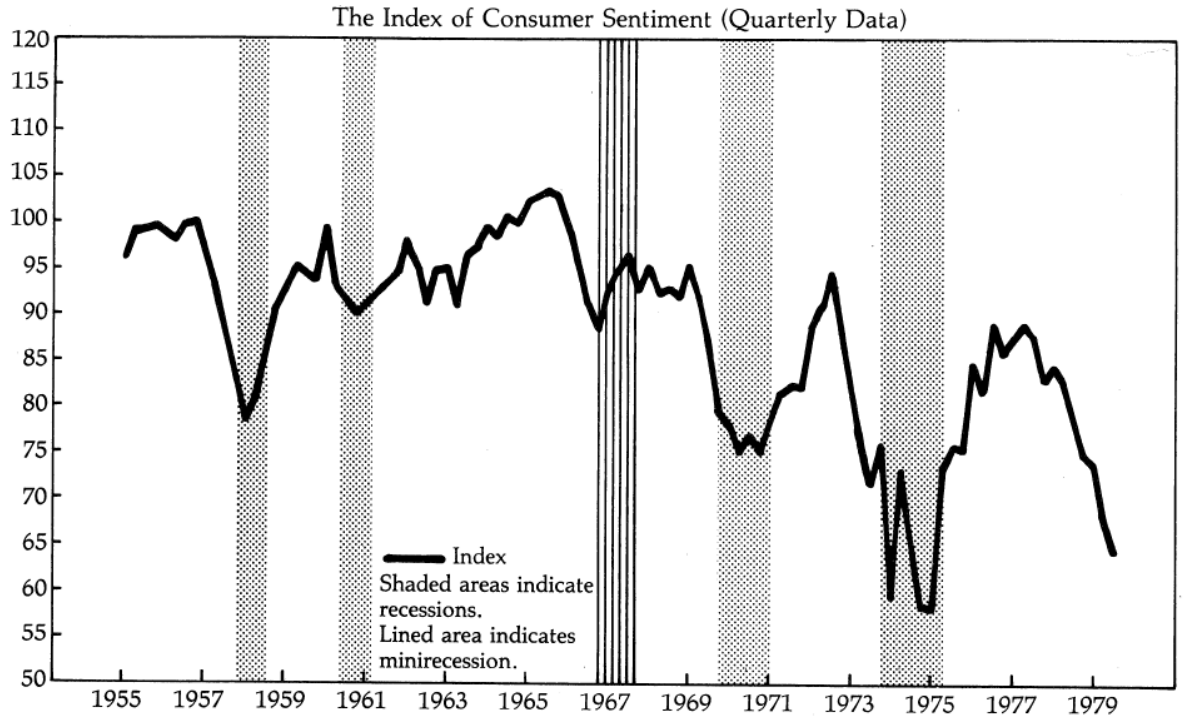
The most significant contribution of Katona is probably the creation of sentiment (or confidence) indexes. Claiming that the aggregate demand for consumer goods depends both on consumers' income and on consumers' "willingness" to buy, Katona decided to build an indicator that summarizes the attitudes, the *Consumer Sentiment Index* (CSI)[34]. This index is a numeric value that explicitly represents agents' willingness to buy, which purpose is to test the hypothesis that attitudes (including expectations) influence consumer purchases. This value is therefore integrated into structural equations of the following nature :

$$D_{+1} = \underset{(0,01)}{0,135\, Y_{-1}} + \underset{(0,06)}{0,47\, A} - 51,6 \quad [35] \qquad R^2 = 0,91$$

D_{+1} representing aggregate consumption of durable goods during the six months following the survey, Y_{-1} representing the income during the six months preceding the survey, and A representing the ICS. The regression is done on 40 observations. The equation shows that much of the variance (91%) of the demand for durable goods is explained by the model, with a significant influence of the ICS. Katona claimed that this indicator had the ability to predict the turning points of the cycle:

[34] For more information on this index see: Katona (1960) and Katona (1975).

[35] Published in E. Mueller, *Ten years of consumer attitude surveys : their forecasting record*, Journal of the American Statistical Association, Vol. 58, No. 304, 1963.



(Chart from George Katona, 1980, p.10)

Through this graphic, Katona shows that downward variations of the index predict recessions. Indeed there is a time lag between the onset of recessions (shaded areas) and declines in the index.

On the question of the formation of expectations, Katona's answers are linked to his specific theory:

> " Even what we hear, see, or experience is colored by our attitudes and motives, and also by sociocultural norms and habits as well as by group belonging. All these variables intervene between stimuli and responses and, occasionally, powerfully influence our responses. [...] we may respond to the same stimuli the second time differently from the first time because new attitudes may have developed in the meantime that influence the response in a different way." (Katona, 1980, pp. 46-7)

The question of the formation of expectations is of secondary importance in Katona's analysis, because there are no strict determinants of expectations in his view. However, he studies the formation of expectations in two different ways. On the one hand, after asking questions about expectations, he systematically asks the question "Why do you say so?" during his interviews. This allows him to identify determinants of expectations by studying the reasons given by the agents themselves. On the other hand, he studies in a more systematic way phenomena such as the effect on price expectations of the perception of price controls (in *Price Controls and Business*) or the effects of tax cuts (*Spending, Saving and the 1964 Tax Cut*, 1968). The agents thought, for example, in the years 1962-1963 that tax cuts would generate financial difficulties for the government and that tax cut would be bad for the

economy as a whole. But towards the end of 1963, the agents had mostly adopted a Keynesian frame of reference and they understood that tax cuts could result in an increase of the overall product and thus additional income for the state.

III.3) Scope and limitations of Katona's theory

Katona's study fits into a business cycle theory and highlights how psychological shocks are a possible cause of aggregate fluctuations or turning points. The term business cycle may be misleading. It has to be interpreted along Keynes's understanding of it, as a succession of movements, or of "oscillations", which does not necessarily follow a periodic logic, and does not oscillate around a normal value. In contrast to theories that explain turning points by pure economic determinants (over investment, under consumption, etc.) Katona tries to show that turning points may be caused by psychological explanations (1951, pp. 274-281):

> "It is here argued that changes in spending plans, capable of leading to substantial curtailment of business activity, may be brought forth by changes in people's attitudes that are independent of the underlying economic situation; more specifically, that people's convictions about the economic prospects, that is, what we have called their general economic outlook, may be pessimistic when underlying conditions do not justify pessimism and may, nevertheless, be effective in changing the trend in the economy." (Katona, 1951, p. 276)

Thus, for Katona, expectations issues are the following:

> "First, when, under what circumstances, do definite expectations arise? Only when strong motivational forces create a problem situation and call for genuine decisions. Second, what is the origin of expectations? This question is of course, closely related to the first." (Katona, 1951, p.199)

The first problem for Katona is to identify the emergence of "definite" expectations. "Definite" has to be understood here as influential. It can be understood also, as said above, in the same way as Keynes understands long term expectations. For Keynes, chocks caused by expectations happen at particular moments outside of which a more stable convention prevails. The second question shows that Katona intends to go further than Keynes in the study of these psychological events. Contrary to Hicks, Katona's study does not accept an *a priori* assumption on the formation of expectations.

Taking the example of the post-war period, Katona shows that expert opinions diverge in 1945 (Katona, 1951 p. 298). Some feared a recession because the state abandoned its financial support and because of the restructuration of the industry (passing from a war production to a civil production). Some experts were thus predicting a high level of unemployment. Other experts, by contrast, were expecting a high level of inflation. They argued that consumption goods demand would be high (since households would invest in

durable goods, home repairs and clothing to dress the soldiers who were absent for a long time) and driven by the financial capital accumulated by households during the war (*war bonds* and bank deposits)[36]:

> "This means that diverse attitudes and frames of reference of businessmen and consumers could have found justification in what may be termed economic facts. How most people actually viewed the situation could not be determined by studying the underlying economic process themselves." (Katona, 1951, p.298)

Saying that Katona adopts a business cycle framework in which expectations have the same role as in the *General Theory* is contradictory to Katona's claims. Indeed, Katona considers Keynes as an author completely opposed to his view. Thus, during all his life he will criticize Keynes severely. However Katona's criticisms on Keynes seem to be superficial, even if they are important from a practical point of view. He attributes to Keynes a wrong methodological position:

> "Econometricians have tended to replace uncertain expectations with 'certainty equivalents'. The practice of disregarding uncertainty may have been based on John Maynard Keynes's (1936) proposition that 'it would be foolish in forming one's expectations to attach great weight to matters which are very uncertain'. This may be justified if uncertainty means that the probability assigned to an expectation is very low. Uncertainty, however, may also mean great concern with future contingencies, fear of adverse developments, and lack of confidence, which should not be neglected."(Katona, 1980, p.53)

This quote shows that Katona falsely accuses Keynes. In other words, he chose the wrong enemy. Misunderstanding Keynes, Katona comes to assign to Keynes a position that Keynes himself rejected. By focusing on the fact that Keynes uses oversimplified psychological laws (Katona centers his criticism on the "fundamental psychological law") without resorting to psychologists, Katona overlooked the fact that Keynes opened some space for psychology in economic theory. He doesn't seem to be conscious that he shared similarities with Keynes[37].

Katona (1951) is his most commented book. He there explains the work that he conducted until 1981. Yet his works of 1975 and 1980[38], less cited in the literature, highlight Katona's vision on the evolution of the economy (through a criticism of Friedman's methodology and a criticism of the rational expectation hypothesis). These works also highlight Katona's own

[36] Thereafter Katona shows that survey data collected by the *Survey Research Center* at this time brought out that households had a strong disposition to consume, but that they were not ready to draw on their savings accumulated during the war. Katona's reasoning proved right. Facts have shown that indeed an intermediate and favorable situation occurred.

[37] Moreover, Katona and Keynes share ideas on the possibility of influencing people's psychology through persuasion. "Keynes always believed that "a little clear thinking" or "more lucidity" could solve almost any problem… reform was achieved by the discussion of intelligent people…using the method of persuasion." (Moggridge, 1976, 38–9). In the same vein, Katona develops the concept of "psychological weapon" (Katona, 1951, 1982). Like monetary or fiscal policies ("economic weapons") government may also conduct psychological policies by trying to influence the reasoning of individuals.

[38] Katona G., *Psychological Economics*, Elsevier Scientific Publishing Company, New York, 1975 et Katona G., *Essays on Behavioral Economics*, Institute of Social Research, the University of Michigan, 1980.

perception of his work. They are thus a good material to understand synthetically his methodology and his intention of bringing closer psychology and economics since the 50s:

> "Milton Friedman (1959) raised the question: 'Can an hypothesis be tested by the realism of its assumptions?' Obviously, the answer to this question is 'no'. [...] But Friedman, [...] has not addressed himself to the fundamental difference between traditional and realistic economics. It is this: Traditional economic theory has not proved to be a complete success, many of its implications and predictions having not proved to be correct. One possible way of attempting to improve traditional theory of economic behavior is to introduce new assumptions and hypotheses." (Katona, 1980, p.45)

Katona's surveys assumptions and hypotheses are inspired from both economic theory (What is the role of price expectations in the behavior of agents?) and psychology (What is the role of the perception of their financial situation?). All of these assumptions, however, are interpreted in the framework of *Gestalt psychology*[39]:

> "[...] The theoretical construct [to develop methodological tools to obtain measures of change in the intervening variables] was approximated by operations, that is, the desired whole or Gestalt was replaced by a variety of survey questions which at best approach the former." (Katona, 1967, pp. 12-3)

The approach consists then in testing various hypotheses, that is to say "likely candidates" (Katona and Mueller, 1953, p. 56) to explain the observed behavior.

Expectations are for Katona, as for Keynes, capricious determinants that may sometimes have a significant influence, but most of the time follow habits (or stable conventions in Keynes). Therefore theoretical systems such as that of Hicks, which confer to expectations a central and extended role are criticized by Katona:

> "Since the larger context in which new expectations originate does not change very frequently, it is questionable whether business behavior is correctly described as resulting from and consisting of a continuous revision of expectations. Business actions are frequently routine in the sense that expectations or changes in expectations play hardly any role in determining them." (Katona, 1946, *Psychological analysis of business decisions*, p.53)

The title of Katona's intervention in 1955 is *Business expectations in the framework of psychological economics (toward a theory of expectations)*. Can we say that Katona proposes a new theory of expectations? Are the theories of expectations of Keynes and Hicks comparable to that of Katona?

Simon (1986) highlights the fact that mainstream economists generally have a "Newtonian" conception (Simon, 1986, p. 12) of what a theory should be. They like to derive, from simple and concise assumptions, varied and significant consequences. But so far, this does not mean

[39] Gestalt psychology was developed y Maw Werteimer around the following publications: *Perception of Movement*, Zeitschrift fur Psychologie, Vol. 61, 1912, *On Principles of Organization* (Psychologische Forschung, Vols. 1 et 4, 1921 et 1923, *Productive Thinking*, New York, 1945; Katona has made its own contribution by the publication of his only book in psychology Organizing and Memorizing (1942).

that other form of theories cannot emerge and be fruitful. Simon takes the example of molecular biology, which incorporates a systematic and detailed study of a multitude of chemical reactions, physical interactions, etc., which couldn't be replaced by a simpler theory. Katona held the same argument in 1951:

> "There is a great temptation to establish general laws of economic which govern economic processes at all times and under all conditions. Modern biological and social sciences, however, in dealing with human nature, set up more modest objectives. Instead of attempting dogmatically to establish the laws of human behavior, they seek to find out what particular conditions occasion each of the many diverse forms of behavior that human beings display. Similarly, we shall ask under what conditions economic behavior of a certain type, and under what conditions economic behavior of another type, is more likely to occur." (Katona, 1951, p.13)

In one of his 1980 essays, Katona questioned the elegant simplicity of the traditional rational choice theory (Katona, 1980, p. 46). Should the latter be challenged? Recalling then the principle of parsimony, *Entia non sunt praeter multiplicanda necessitatem*[40], Katona says:

> " 'Under conditions a_1, b_1, c_1 (e.g., prosperous times, large reserves, optimistic attitudes), business firms strive for longer-range objectives than under conditions a_2, b_2, c_2.' Would such generalisation constitute introducing unnecessary complexities into the principle of maximation?" (Katona, 1980, p.47)

Katona emphasizes here that there is not only one relevant representation of the economy, but many. There is one economy described by a_1, b_1, c_1 and another by a_2, b_2, c_2. The problem of expectations for Katona should be treated by starting from these conditions. No model can, for him, discuss those economies in a single coherent system. This methodological claim may explain the misunderstanding from economists that may arise on the work of Katona. In the words of Tobin (1972):

> "A behavioral scientist by training and temperament, [Katona] brought to economic research quite a different bag of tools and insights from those of the technical economists. As a social psychologist, he was probably not surprised to find that he annoyed many of the brethren of his adopted scientific fraternity. What put them off was his disdain for utility-maximizing or profit-maximizing models of individual behavior, and his failure to base his statistical inferences and macro-economic conclusions on explicit formal system-wide models." (Tobin, 1972, p.37)

Katona, therefore, develops a practical knowledge intended to give clues on the expectations that prevail at a given moment in the economy. Indeed for Katona, because these conditions change in history and according to the society studied, too little generalizations can be drawn on the origins of expectations. The study must go back and forth, between empirical and theoretical works, in an infinite process consisting on testing and revising hypotheses:

> "The author's attempts during the past 30 years to make predictions of economic trends from systematic measurement of changes in consumer attitudes and expectations have often been called applied psychology, or applied economics. But survey research serves a purpose beyond that of describing reality and even predicting reality. By derivating predictions from hypotheses and theories we make

[40] This is Ockham's razor principle and translates: "Entities should not be multiplied unnecessarily."

> way for the most powerful of scientific tests. This is the means whereby we let nature decide how our hypotheses need to be revised." (*ibid*, p.47)

This practical knowledge, furthermore, creates some possibilities for the government to act on public opinion and business expectations:

> "Government action should be directed to counteract the development of cumulative expectations[...] Since expectations are not innate and are not a function of the frequency of the individual's past experience but are dependent upon his understanding of events (including government actions and government announcements), it does not seem impossible to achieve this objective. But in order to achieve it, policy makers must explore the probable effects of their contemplated actions on business and consumer expectations and must consider the presence or absence of a need for, and the means of, reorienting public thinking." (Katona, 1946, p. 62)

This last quote underlines Katona's own normative objectives.

Conclusion:

Keynes's and Hicks's theories of expectations start from two different conceptions of the world and aim at two different goals. Keynes, considering expectations as given exogenous variables, consciously leaves a theoretical vacuum in his analysis. While assigning a prominent role to psychological determinants he does not build an extensive study of these factors. He stands for a more pronounced analysis of financial markets but postulates stable psychological laws for producers and consumers. Keynes leaves thereby space for more detailed study on conventions and confidence.

Hicks, on the other hand, tries to endogenize expectations. He gives to this concept a truly dynamic role since expectations both determine and are determined by economic variables. He neglects the exogenous determinants of expectations (and therefore neglects the psychological factors) to provide an analytical and coherent explanation of the business cycle. This is done at the cost of a distance *vis-à-vis* the phenomena observed in the real world[41].

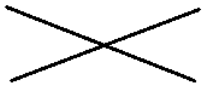
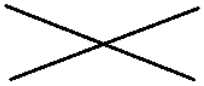
Katona is in the continuity of Keynes's theory. However, he does not restrain his study to the measurement of confidence. He tries to develop all the missing parts of the theory of Keynes and to answer the following questions: When, why and how expectations are formed and how do they influence the economy? His work is therefore not limited to the development of tools to predict the fluctuations of the economy:

> "Yet it has been stated repeatedly that the prediction derived from the publication of the value of the Index of Consumer Sentiment represents only one part of the predictive value of attitudes and expectations. The purpose of the quarterly surveys has been not only to find out what will happen to

[41] "It must be realized, indeed, that, as the price of this austerity, the purely theoretical economist becomes unable to say that any opportunities or dangers he diagnoses are or are not present in the actual world, at any particular date. He is bound to leave that to a separate investigation. But he will at least have helped that other investigator in showing him some things to look out for." (Hicks, 1939, p. 7)

> discretionary demand, but also to find out why it will happen. Analysis of the reasons for observed changes represents the major task of expectational economics. Policy makers in government and business, and public opinion leaders in general, need to know not only what the prospects are but also which developments make for large or small changes in the one or the other direction." (Katona, 1967, pp. 12-3)

Thus Katona marks a strong methodological distance with Hicks's work. During the second half of the twentieth century he will maintain and accentuate this position by criticizing the work of Friedman (Katona, 1975) and the rational expectations hypothesis (Katona, 1980). The following table resumes the conclusion of the article :

	Exogenous expectations	*Endogenous expectations*
Keynes (1936)	*Ex : long-term expected profits* ⇨ Agents rely on conventions and confidence **Analysis of exogenous shocks on the equilibrium**	*Ex : .short-term expected profits* ⇨ Expectations are extrapolative
Hicks (1939)		*Ex : Expected prices in a logical time* ⇨ Expectations are adaptative and corrected by a risk factor **Analysis of instability in a business cycle framework**
Katona (1951)	*Ex : Profits / income / expected prices in specific historical contexts* ⇨ Attitudes and frames of reference explain the behavior of agents (= *Gestalt psychology*) **Analysis of exogeneous shocks on aggregated variables**	

Classification of Keynes's, Hicks's and Katona's theories of expectations

To conclude, it is worth noticing that the nature of uncertainty and its consequences for economic analysis, in Keynes's work, were often misinterpreted (Lawson, 1985, 1987). Economists commonly assume that the postulate of radical uncertainty is destructive for economic analysis; in case of uncertainty, "the economic reasoning is of no value" (Lucas, 1981, p.224). This assertion seems accurate and fits entirely within the scope of this article. However, it does not appear true that the reintroduction of the problem in a traditional framework, is the only alternative to the problem posed thus far. Keynes's theory proposes another approach which gives importance to the effective knowledge of agents, conditioned by their social environment and by their everyday practices (Lawson, 1985). Faced with the need to study a particular social phenomenon, the dominant strategy, which consists in building unrealistic models "embodying arbitrarily specified 'objectives' and 'constraints'" (Lawson, 1985, p. 925), has its limits. An alternative response, in Lawson's view, would be to devote more resources to learning about the institutional behavior, norms, conventions - or more generally, rule systems - that are produced and reproduced by people in the various relevant spheres of activity" (*ibid.*). Lawson seems to describe the work of Katona even if the

former does not cite the latter's work.

Katona's work, therefore, represents an important theoretical contribution, since it seems to perpetuate and renew the Keynesian tradition, which postulates radical uncertainty and expectations as given data.

References :

BERTHOUD A., *Le pragmatisme philosophique dans la Théorie Générale de Keynes*, in Convert B., Herand F., *L'entrepreneur chez Keynes*, Harmattan, 2000.

BOWMAN J., *Expectations, uncertainty, and business behavior*, Social Science Research Council, New York, 1958.

BRUNI L., SUGDEN R., *The Road Not Taken: How Psychology Was Removed from Economics, and How it Might Be Brought Back*, Economic Journal, Vol. 117, No. 516, 2007, pp. 146-73

CONVERT B., HERAND F., *L'entrepreneur chez Keynes*, Cahiers Lillois d'économie et de sociologie, 1999.

CURTIN, R. T., *Curtin on Katona,* in Spiegel, H.W. and Samuels, W.J. (Eds.), *Contemporary Economists in Perspective*, New York: Jai Press, 1983, pp. 495-522.

CURTIN R. T., *Consumer Sentiment Surveys : Worldwide Review and Assessment*, Journal of Business Cycle Measurement and Analysis, OCDE, 2007, p. 16.

DAVIDSON P., *Rational Expectations: A Fallacious Foundation for Studying Crucial Decision-Making Processes*, Journal of Post Keynesian Economics, Vol. 5, No. 2, hiver, 1982-83.

DAVIDSON P., *Is Probability Theory Relevant for Uncertainty? A Post Keynesian Perspective*, The Journal of Economic Perspectives, Vol. 5, No. 1, Winter, 1991.

EDWARDS J. M., *Joyful Economics: Remarks on the History of Economics and Psychology from the Happiness Studies Perspective*, Thèse (Université Paris 1 Panthéon-Sorbonne), 2010.

EDWARDS J. M., *Observing Attitudes Intentions and Expectations (1945-1973)*, Working Paper, History of Political Economy, Duke University Press, 2011.

FRIEDMAN M., *The Methodology of Positive Economics*, in Essays in Positive Economics, Chicago, The University of Chicago Press, 1953, p. 3-43.

HART A.G., *Anticipations, uncertainty, and dynamic planning* (1940), Augustus M. Kelley, New York, 1951

HICKS J. R., *A Suggestion for Simplifying the Theory of Money*, Economica, New Series, Vol. 2, No. 5, 1935, pp. 1-19.

HICKS J. R., *Value and Capital (1939)*, Oxford University Press, Oxford, second edition, 1946.

HICKS J. R., *Automatists, Hawtreyans and Keynesians*, Journal of Money, Credit and Banking, Vol.1, 1969, pp. 307-17.

HICKS J. R., *A Contribution to the Theory of the Trade Cycle*, Oxford, Clarendon Press, 1950.

HODGSON G., *Persuasion, Expectations and the Limits to Keynes* in Lawson T. and Pesaran H. (Eds.), *Keynes' Economics (Routledge Revivals): Methodological Issues*, Routledge, 2009.

HOSSEINI H., *George Katona: A founding father of old behavioral economics*, The Journal of Socio-Economics, Vol. 40, 2011, pp. 977-984.

KALDOR N., *Speculation and Economic Stability*, The Review of Economic Studies, Vol. 7, No. 1, Oct., 1939.

KALDOR N., *Mr. Hicks on the Trade Cycle*, The Economic Journal, Vol. 61, No. 244 (Dec., 1951), pp. 833-847.

KATONA G., *Organizing and Memorizing*, Columbia University Press, New York, 1940.

KATONA G., *War Without Inflation*, Columbia University Press, New York, 1942.

KATONA G., *The Role of the Frame of Reference in War and Post-War Economy*, American Journal of Sociology, Vol. 49, No. 4 (Jan., 1944), pp. 340-347.

KATONA G., *Price Control and Business*, Cowles Commission and Principia Press, Bloomington, 1945.

KATONA G., *Psychological Analysis of Business Decisions and Expectations*, The American Economic Review, Vol. 36, No. 1 (Mar., 1946), pp. 44-62.

KATONA G., *Contribution of Psychological Data to Economic Analysis*, Journal of the American Statistical Association, Vol. 42, No. 239 (Sep., 1947), pp. 449-459.

KATONA G., *Psychological analysis of economic behavior*, McGraw-Hill, 1951.

KATONA G., *Rational Behavior and Economic Behavior*, Psychological Review, Vol. 60, No. 5 1953, pp. 307-318.

KATONA G., *Changes In Consumer Expectations And Their Origin* in The Quality and Economic Significance of Anticipations, Universities-National Bureau, UMI, 1960.

KATONA G., *The Powerfull Consumer*, McGraw-Hill, New York, 1960.

KATONA G., *Anticipations Statistics and Consumer Behavior*, The American Statistician, Vol. 21, No. 2 (Apr., 1967), pp. 12-13.

KATONA G., *Theory and Findings on Expectations and Aspirations*, The American Economic Review, Vol. 58, No. 2, Papers and Proceedings of the Eightieth Annual Meeting of the American Economic Association (May, 1968), pp. 19-30.

KATONA G., *A theory of expectations*, in Strümpel *et al*. (Eds.), *Human Behavior in Economic Affairs. Essays in Honor of George Katona*, Jossey-Bass, 1972.

KATONA G., *Psychological Economics*, Elsevier Scientific Publishing Company, New York, 1975.

KATONA G., *Toward a Macropsychology* (1979), American Psychologist, Vol. 34, No. 2, 1979, pp. 118-126.

KATONA G., *Essays on Behavioral Economics*, The Institute for Social Research, The University of Michigan, 1980.

KATONA G., *Selling Government Programs*, Journal of Macromarketing, Vol. 38, No. 2, 1982, pp. 38-42.

KATONA G., KLEIN L.R., *Psychological Data in Business Cycle Research*, American Journal of Economics and Sociology, Vol. 12, No. 1, 1952, pp. 11-22.

KATONA G., MORGAN J. N., *The quantitative study of factors determining business decisions*, The Quaterly Journal of Economics, Vol. 66, No. 1, 1952, pp. 67-90.

KATONA G., MUELLER E., *Spending, Saving and the 1964 Tax Cut*, Brookings Institution, 1968.

KATONA G., STRUMPEL B., *Consumer Investment Versus Business Investment*, Challenge, Vol. 18, No. 6, 1976, pp. 12-16.

KEYNES J.M., *A Treatise on Probability*, MacMillan, London, 1921.

KEYNES J. M., *A Treatise on Money*, New York, Harcourt, 1930.

KEYNES J. M., *The general theory of employment interest and money* (1936), in Collected Writings, VII, 1973.

KEYNES J. M., *The General Theory of Employment*, The Quarterly Journal of Economics, Vol. 51, No. 2, 1937, pp. 209-223.

KEYNES J.M., *Lettre a Townshend*, *The General Theory and After : A supplement*, in Collected Writings, XXIX, p.294

KNIGHT F.H., *Risk, Uncertainty, and Profit*, Houghton Mifflin Cie., 1921.

LAWSON T., *Uncertainty and Economic Analysis*, The Economic Journal, Vol. 95, No. 380, Dec., 1985, pp. 909-27.

LAWSON T., *Probability and Uncertainty in Economic Analysis*, Journal of Post Keynesian Economics, Vol. 11, No. 1, Oct., 1988, pp. 38-65.

LUCAS, R. E., *Studies in Business Cycle Theory*, Cambridge, Mass. : M.I.T. Press, 1981.

MUELLER E., *Ten years of consumer attitude surveys : their forcasting record*, Journal of the American Statistical Association, Vol. 58, No. 304, 1963.

MUTH J. F., *Rational Expectations and the Theory of Price Movements*, Econometrica, Vol. 29, No. 3, Jul., 1961.

MYRDAL G., *Monetary Equilibrium* (1939), London : W. Hodge, (first publish in Swedish, in 1931).

POSTEL A., *Rationalité relative, jugement pratique et coordination chez Keynes*, dans Convert B., Herand F., *L'entrepreneur chez Keynes*, Harmattan, 2000.

ROBINSON J., *Economic Philosophy*, C.A. Watts, 1962.

RUBIN G., *Hicks et l'économie de la dépression*, Recherches économiques de Louvain, Vol. 77, No. 4, 2011.

SENT E.-M., *Behavioral Economics: How Psychology Made Its (Limited) Way Back into Economics*, History of Political Economy, Vol. 36, No. 4, 2004, pp. 735-760.

SIMON H. A., *Rationality in Psychology and Economics*, Journal of Business, Vol. 59, No. 4, 1986, pp. 209-24.

TOBIN J., *Wealth, Liquidity, and the Propensity to Consume*, in Strümpel *et al*. (Eds.), *Human Behavior in Economic Affairs. Essays in Honor of George Katona*, Jossey-Bass, 1972.

WICKSELL K., *Interest and prices*, Macmillan, London, 1898.

WINSLOW, *Keynes and Freud: Psychoanalysis and Keynes's Account of the "Animal Spirits" of Capitalism*, Social Research, Vol. 53, No.4, 1986.